

Chapter 4:

Key Nutrient Analysis Concepts

All Foods Count in Nutrient Analysis

All food or menu items served in a meal, *including condiments*, are included in the nutrient analysis and count toward meeting the Nutrient Standard for the meal. However, foods that are considered Foods of Minimal Nutritional Value under 7 CFR Parts 210 and 220, Appendices B (i.e., chewing gum, soda water, water ices, and certain candies) can only be included in the nutrient analysis calculations if they are part of a menu item. Appendix A of this manual, on page 47, provides more information on Foods of Minimal Nutritional Value.

Nutrients Averaged over the School Week

For nutrient-based menu planning and for State agency monitoring of food-based menu planning, menus will be analyzed over a school week.

School Week Definition

For the purposes of nutrient analysis, a school week shall be a normal school week of five consecutive days; to accommodate shortened weeks, the period shall be a minimum of three consecutive days and a maximum of seven consecutive days. Menus for weeks in which school lunches are offered less than three times shall be combined with either the previous week's menus or the subsequent week's menus.

For example, this would be applied when there are only two days of school during the week of Thanksgiving. Those two days could be combined with either the week before or the week after Thanksgiving. The same situation might arise around other holiday periods or during the first and last weeks of school.

By combining a menu week that only has one or two days in it with another week, the menu planner avoids problems in meeting the Nutrient Standard that can arise out of analyzing such a small sample of meals.

Weighted Analysis vs. Unweighted Analysis (Simple Averaging)

To accurately analyze the nutritional composition of meals planned for students for lunch and breakfast, regardless of the menu planning option, regulations require that the nutrient analysis of the meals be based on weighted averages.

The weighted nutrient analysis allocates a greater proportion of nutrients from foods that are selected more frequently; foods that are selected less frequently will contribute fewer nutrients to the nutrient analysis. Weighting is accomplished automatically by the USDA-approved software when the number of planned reimbursable meals and the number of servings of menu items and condiments and their servings sizes are entered for menu analysis.

In order to evaluate the feasibility of using an unweighted nutrient analysis (simple averaging) to determine compliance with the nutrition standards, USDA has authorized a two-year waiver, until July 1, 1998, of the regulatory requirement that nutrient analyses of school meals be conducted using a weighted analysis. With a simple average, the nutrients in all foods are given equal weight regardless of the amounts produced of each item.

Some States have requested the waiver which permits the use of simple averaging instead of weighted analysis. In those States approved for use of simple averaging, the SFA and/or the State agency may choose to use simple averaging to perform the nutrient analysis rather than conducting a weighted analysis.

Weighted Analysis:

The weighted nutrient analysis methodology gives more weight to the nutrients in popular foods that may be frequently selected from a choice or Offer versus Serve menu. This allows for a greater contribution of nutrients to come from the elected more frequently. Menu items that are less popular and selected by fewer students will contribute fewer nutrients to the nutrient analysis, as demonstrated in the example below:

Weighted Nutrient Analysis			
Entree Items	Actual Servings Planned	Data Entry Servings Planned	Nutrient Composition
Pizza	200	200	66.7%
Baked chicken	50	50	16.7%
Chef's salad	50	50	16.7%
Total	300	300	100%

The calculation method for computing a weighted nutrient analysis will require the planner to **enter**:

- Total number of planned reimbursable meals for each day for a weekly menu.
- Portion size(s) for each menu item/condiment
- Projected number of servings for each portion size for each menu item which will be part of a reimbursable meal

Note: Only reimbursable meals are included for nutrient analysis; therefore, the total number of projected servings for each portion size for each menu item and the total number of planned reimbursable meals must not include adult meals or à la carte sales.

If all schools in a grade or age group follow the same centralized menu, weighting should reflect the projected total number of meals planned and the projected servings and portion sizes for each menu item and condiment for all schools using the menu.

Simple Averaging:

For nutrient analysis, simple averaging means giving equal weight to every item within each menu choice. If a school/school district had no menu choices, simple averaging for nutrient analysis could be accomplished by planning a menu for 1 meal and by entering each menu item as 1 serving. However, there are almost always choices, if for nothing other than milk.

The chart below demonstrates giving equal weight in the nutrient analysis for each of 3 entree choices:

Nutritional Analysis Based on Simple Averages			
Entree Items	Actual Servings Planned	Data Entry Servings Planned	Nutrient Composition
Pizza	200	300	33.3%
Baked chicken	50	300	33.3%
Chef's salad	50	300	33.3%
Total	300	900	100%

To perform simple averaging for multiple choices, it is necessary to know the portion size as well as the number of choices that will be offered and the number of selections that a student can make within each group of choices. It is not necessary to know the number of student meals planned or the number of servings planned for each menu item. Instead, the number of planned meals entered into the nutrient analysis software should be a number which is easily divisible by the number of choices.

The number 900 works well because, for choices up to 6, it comes out to an even number of planned servings for each choice. For example if you use the number 900 as the meals planned, you would distribute planned servings of individual food items according to the following chart:

A student may select one serving from this number of choices

Number of planned servings to enter for Menu Planning

1	900
2	450
3	300
4	225
5	180
6	150

If a student may select more than one item from a group of choices, multiply the number of planned servings for menu planning obtained from the chart above by the number of items the student may choose. For example, if 4 choices are offered, you would select the number 225 from the chart above; and if the student may select 2 items from the 4 choices, you would multiply 225 by 2 to determine the number of planned servings to enter into the computer for each of the 4 choices:

$225 \times 2 = 450$ = the number of planned servings to enter for menu planning for each choice

Or, for example, if 5 choices are offered, you would select the number 180 from the chart above; and if the student may select 2 items from the 5 choices, you would multiply 180 by 2 to determine the number of planned servings to enter into the computer for each of the 5 choices:

$180 \times 2 = 360$ = the number of planned servings to enter for menu planning for each choice

See the Appendix B on page 49 for an example of simple averaging for a sample menu.

Option to Combine Breakfast and Lunch Analyses

As an option, an SFA may combine the analyses for school lunch and school breakfast. The combined analysis must be proportionate to the levels of participation in lunch and breakfast. FNS has developed a methodology for calculating the nutrient value of combined breakfast and lunch meals.

Some USDA-approved software has the capability of combining breakfast and lunch analyses. USDA has also developed a worksheet designed to provide a “step-by-step” approach for calculating a combined breakfast and lunch nutrient analysis on paper. The worksheet is in Appendix I, page 9-aa, of the *Healthy School Meals Training* manual.

The worksheet may be used by food service staff utilizing the NuMenus or Assisted NuMenus options if they desire one

complete and combined analysis of their school breakfast and lunch menus. The key components of an accurate calculation require the Nutrient Standards and the analyzed nutrient values of menus for breakfast and lunch to be weighted by the meal participation rates for each.

Special Meals for Children with Special Health Care Needs

Rules regarding whether or not to include special meals for children with special health care needs are as follows:

- When food or menu item substitutions are made for students with special dietary needs, the meals are *not* included in the menu plan for nutrient analysis.
- Special meals that do not include substituted food or menu items (e.g., meals that are modified only for texture) are included in the nutrient analysis.

Appendix A: Foods of Minimal Nutritional Value

Competitive Foods

Competitive foods means any foods sold in competition with the Program to children in food service areas during the lunch periods.

Foods of Minimal Nutritional Value

A Food of Minimal Nutritional Value means:

1. In the case of artificially sweetened foods, a food which provides less than five percent of the Reference Daily Intakes (RDI) for each of eight specified nutrients per serving *and* is included in one of the Categories of Foods of Minimal Nutritional Value (FMNV) listed in Appendix B to 7 CFR Part 210. Those categories include (1) soda water, (2) water ices, (3) chewing gum, and (4) certain candies, including (i) hard candies, (ii) jellies and gums, (iii) marshmallow candies, (iv) fondant, (v) licorice, (vi) spun candy, and (vii) candy-coated popcorn.
2. In the case of all other foods, a food which provides less than five percent of the RDI for each of eight specified nutrients per 100 calories and less than five percent of the RDI for each of eight specified nutrients per serving *and* is included in one of the Categories of FMNV listed in Appendix B to 7 CFR Part 210 (see categories above).
3. The eight nutrients to be assessed for FMNV include (a) protein, (b) vitamin A, (c) vitamin C, (d) niacin, (e) riboflavin, (f) thiamin, (g) calcium, and (h) iron.
4. All foods falling into one of the Categories of FMNV in Appendix B to 7 CFR Part 210 are considered to be FMNV unless the Food and Nutrition Service has been petitioned and has granted an exemption for the particular food. Any person may submit a petition to the Food and Nutrition Service requesting that an individual food be exempted from a category of Foods of Minimal Nutritional Value. In determining whether an individual food is a FMNV, discrete nutrients added to the food will not be taken into account. Procedures for applying for an exemption are provided in Appendix B to 7 CFR Part 210. Interested persons may contact the Nutrition and Technical Services Division of the Food and Nutrition Service at (703) 305-2556 for additional information.

General Information

State agencies and school food authorities shall establish such rules or regulations as are necessary to control the sale of foods in competition with lunches served under the Program. Such rules or regulations shall prohibit the sale of FMNV in the food service areas during the lunch periods. The sale of other competitive foods may, at the discretion of the state agency and school food authority, be allowed in the food service area during the lunch period only if all income from the sale of such foods accrues to the benefit of the nonprofit school food service or the school or student organizations approved by the school. State agencies and school food authorities may impose additional restrictions on the sale of and income from all foods sold at any time throughout schools participating in the Program.

Appendix B: Example of Determining Projected Servings Using Unweighted Analysis (Simple Averaging)

Projected Meals: 900

	Menu	Projected Servings	Steps Necessary to Get Projected Servings for Computer Entry
Select One	Chicken Nuggets Spaghetti with Meat Sauce	450 450	$\frac{900 \text{ Projected Meals}}{2 \text{ menu item choices}} = 450$ projected servings for each menu item in this group
Select Two	Baked Potato Wedges Seasoned Green Beans Steamed Corn Tossed Salad with Dressing Fresh Fruit Cup	360 360 360 360 360	$\frac{900 \text{ Projected Meals}}{5 \text{ menu item choices}} = 180$ servings $180 \times 2 \text{ food item selections} = 360$ projected servings for each menu item in this group
Select One	Dinner Roll Corn Muffin Garlic Bread	300 300 300	$\frac{900 \text{ Projected Meals}}{3 \text{ menu item choices}} = 300$ projected servings for each menu item in this group
Select One	Whole Milk 1% Chocolate Milk Skim Milk 1% Lowfat Milk	225 225 225 225	$\frac{900 \text{ Projected Meals}}{4 \text{ menu item choices}} = 225$ projected servings for each menu item in this group

